



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/552,728

10/11/2005

Koso Fujino

017700-0179

9461

23392 7590 05/11/2010

FOLEY & LARDNER
555 South Flower Street
SUITE 3500
LOS ANGELES, CA 90071-2411

EXAMINER

WARTALOWICZ, PAUL A

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

05/11/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,728	Applicant(s) FUJINO ET AL.	
	Examiner PAUL A. WARTALOWICZ	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,6,9,12 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,6,9,12 and 15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/29/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 3, 6, 9, 12, 15-22 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that none of Eyidi, Goyal, '750, Hsu, Akedo, or Hans teaches the annealing temperature of claims 3 and 9. However, none of these references are relied upon to teach the annealing temperature. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Christen is relied upon to teach the annealing temperature and atmosphere of claims 3, 9, 19-22 as described in the rejection below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1793

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3, 9, 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eyidi et al. ("Growth of CeO₂ thin films...") in view of Hans Thieme et al. (US 6458223) and JP 07-105750 (hereinafter '750: please refer to the machine translation attached to this office action) and Hsu (US 6569745) and Christen (US 6296701).

Eyidi teaches a method of making a superconducting (pg 15) wherein nickel substrates are hot rolled and then hot rolled, cold rolled to achieve a certain deformation (this appears to be a planarizing step), annealed, cleaned wherein after cleaning an intermediate layer of CeO₂ is deposited therein, wherein a YBCO superconductor is disposed thereon (pg 20).

Eyidi fails to teach the planarizing depth, the crystal axis offset, and the surface roughness.

'750 teaches a superconductor wire [0001] wherein the angle Φ (made by the normal X of the crystal surface and the Y of the polycrystalline metal base body) is less than 15° and angle θ formed by connecting crystal particles is less than 10° (Abstract, [0023]) for the purpose of reducing micro unevenness of the grain boundary [0023].

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a substrate having an angle Φ (made by the normal X of the crystal surface and the Y of the polycrystalline metal base body) is less than 15° and angle θ formed by connecting crystal particles is less than 10°

Art Unit: 1793

(Abstract, [0023]) in Eyidi in order to reduce micro unevenness of the grain boundary [0023] as taught by '750.

It appears that the angles disclosed in '750, namely that the angle Φ (made by the normal X of the crystal surface and the Y of the polycrystalline metal base body) is less than 15° and angle θ formed by connecting crystal particles is less than 10° (Abstract, [0023]) overlaps with and inherently meets the limitation of crystal axis offset relative to an orientation axis by at most 10° .

If '750 does not inherently teach a crystal axis offset relative to an orientation axis by at most 10° , it would be obvious to reduce the crystal axis offset relative to an orientation axis to overlap with a range of at most 10° because '750 teaches that reducing micro unevenness of the grain boundary is desired for superconductor properties [0023].

Hans Thieme et al. teach a method of making a superconductor (col. 1) wherein the roughness of the substrate corresponds to the current carrying capability of the superconductor film wherein the roughness is 10-20 nm Ra (col. 11-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a roughness of 10-20 nm Ra (col. 11-12) for the metal substrate in Eyidi in order to maintain a certain current carrying capability of the superconductor film (col. 11-12) as taught by Hans Thieme et al.

Hsu teaches a method of making a superconducting article (col. 1) wherein it is known to planarize a layer to a thickness of between 50-500 nm (col. 2).

Art Unit: 1793

Therefore, it would have been obvious to one of ordinary skill in the art to planarize a layer to a thickness of between 50-500 nm (col. 2) in Eyidi in order to produce a superconducting article as taught by Hsu.

Eyidi teaches that the metal substrate is cleaned (page 15), but fails to teach thermally treating said textured metal substrate at a temperature of 500-800°C, more preferably 600-700°C, in either a vacuumed or reduced atmosphere at least once.

Christen, however, teaches a method of making biaxial substrates for superconductors (col. 1, lines 14-18) wherein a nickel substrate is annealed in a vacuum atmosphere, or reducing atmosphere, at a temperature of 600-900°C for 5 hours for the purpose of removing metallic oxides and other impurities (col. 8, lines 16-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide annealing the nickel substrate of Eyidi in a vacuum atmosphere, or reducing atmosphere, at a temperature of 600-900°C for 5 hours in order to remove metallic oxides and other impurities (col. 8, lines 16-30) as taught by Christen and because Eyidi teaches cleaning the substrates before depositing the cerium oxide layer (page 15).

Regarding claims 19 and 20, it appears that the range of annealing temperature disclosed by Christen overlaps with that of claims 19 and 20. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. MPEP 2144.05 (I).

Art Unit: 1793

Regarding claim 21, Christen teaches that the atmosphere for cleaning is a vacuumed atmosphere (col. 8, lines 20-25). The range of pressure of less than 1 atm (equivalent to 1.01×10^5 Pa) taught by Christen overlaps with the claimed range of less than 1.33×10^2 Pa. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. MPEP 2144.05 (I).

Claims 6, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eyidi et al. (“Growth of CeO_2 thin films...”) in view of Hans Thieme et al. (US 6458223) and JP 07-105750 (hereinafter ‘750: please refer to the machine translation attached to this office action) and Hsu (US 6569745) and Christen (US 6296701) and Akedo et al. (US 6827634).

Eyidi teach a method of making a superconductor as described above in claim 3.

Eyidi teaches rolling the substrate (pg 15).

Akedo teaches a method for depositing a layer on a substrate (col. 1) wherein it is known to use a mirror roller for the purpose of planarizing a material layer (col. 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant’s invention was made to provide a mirror roller in Eyidi in order to carry out planarization as taught by Akedo et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1793

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz
May 7, 2010

/Stanley Silverman/
Supervisory Patent Examiner, AU 1793